Strategy Research Project

GLOBAL MISSILE DEFENSE: TIME TO CHANGE THE CURRENT COMMAND CONSTRUCT?

BY

COLONEL DANIEL P. SAUTER III
United States Army

USAWC CLASS OF 2009

U.S. Army War College, Carlisle Barracks, PA 17013-5050

The U.S. Army War College is accredited by the Commission on Higher Education of the Middle State Association of Colleges and Schools, 3624 Market Street, Philadelphia, PA 19104, (215) 662-5606. The Commission on Higher Education is an institutional accrediting agency recognized by the U.S. Secretary of Education and the Council for Higher Education Accreditation.

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. REPORT DATE *(DD-MM-YYYY)*	**2. REPORT TYPE**	**3. DATES COVERED** *(From - To)*
26-03-2009	Strategy Research Project	

4. TITLE AND SUBTITLE

Global Missile Defense: Time To Change The Current Command Construct?

5a. CONTRACT NUMBER

5b. GRANT NUMBER

5c. PROGRAM ELEMENT NUMBER

6. AUTHOR(S)

Colonel Daniel P. Sauter III

5d. PROJECT NUMBER

5e. TASK NUMBER

5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)

Colonel James Shufelt
Center for Strategic Leadership

8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)

U.S. Army War College
122 Forbes Avenue
Carlisle, PA 17013

10. SPONSOR/MONITOR'S ACRONYM(S)

11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION / AVAILABILITY STATEMENT

Distribution A: Unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT

One of the most pressing national security issues facing the United States is ballistic missile defense. For over four decades, missiles armed with nuclear warheads have posed a threat to the very existence of the American way of life. Visionary United States policy has guided the funding, development, and employment of missile defense capabilities which enable missile defense assets to destroy an in-flight missile inside or outside of the atmosphere. While it is understandable that the development of these new technological capabilities was the initial focus of effort, the missile defense environment now exceeds traditional theater-oriented command and control architectures. Piecemeal command and control solutions were developed as new missile defense technologies were fielded. The purpose of this paper is to analyze current missile threats to the United States, review existing missile defense systems and organizations, and provide recommendations to improve the command and control of global missile defense.

15. SUBJECT TERMS

STRATCOM, Command and Control, Ballistic Missile Defense, Missile Threats, Air and Missile Defense, Air Defense Artillery, Counter Air, JFCC-IMD

16. SECURITY CLASSIFICATION OF:			**17. LIMITATION OF ABSTRACT**	**18. NUMBER OF PAGES**	**19a. NAME OF RESPONSIBLE PERSON**
a. REPORT	**b. ABSTRACT**	**c. THIS PAGE**			**19b. TELEPHONE NUMBER** *(include area code)*
UNCLASSIFED	UNCLASSIFED	UNCLASSIFED	UNLIMITED	36	

USAWC STRATEGY RESEARCH PROJECT

GLOBAL MISSILE DEFENSE: TIME TO CHANGE THE CURRENT COMMAND CONSTRUCT?

by

Colonel Daniel P. Sauter III
United States Army

Colonel James Shufelt
Project Adviser

This SRP is submitted in partial fulfillment of the requirements of the Master of Strategic Studies Degree. The U.S. Army War College is accredited by the Commission on Higher Education of the Middle States Association of Colleges and Schools, 3624 Market Street, Philadelphia, PA 19104, (215) 662-5606. The Commission on Higher Education is an institutional accrediting agency recognized by the U.S. Secretary of Education and the Council for Higher Education Accreditation.

U.S. Army War College
CARLISLE BARRACKS, PENNSYLVANIA 17013

ABSTRACT

AUTHOR: Colonel Daniel P. Sauter III

TITLE: Global Missile Defense: Time To Change The Current Command Construct?

FORMAT: Strategy Research Project

DATE: 26 March 2009 WORD COUNT: 6,964 PAGES: 36

KEY TERMS: STRATCOM, Command and Control, Ballistic Missile Defense, Missile Threats, Air and Missile Defense, Air Defense Artillery, Counter Air, JFCC-IMD

CLASSIFICATION: Unclassified

One of the most pressing national security issues facing the United States is ballistic missile defense. For over four decades, missiles armed with nuclear warheads have posed a threat to the very existence of the American way of life. Visionary United States policy has guided the funding, development, and employment of missile defense capabilities which enable missile defense assets to destroy an in-flight missile inside or outside of the atmosphere. While it is understandable that the development of these new technological capabilities was the initial focus of effort, the missile defense environment now exceeds traditional theater-oriented command and control architectures. Piecemeal command and control solutions were developed as new missile defense technologies were fielded. The purpose of this paper is to analyze current missile threats to the United States, review existing missile defense systems and organizations, and provide recommendations to improve the command and control of global missile defense.

.

GLOBAL MISSILE DEFENSE: TIME TO CHANGE THE CURRENT COMMAND CONSTRUCT?

One of the most pressing national security issues facing the United States is ballistic missile defense. For over four decades, missiles armed with nuclear warheads have posed a threat to the very existence of the American way of life. The collapse of the former Soviet Union did not eliminate this threat. The on-going global proliferation of weapons of mass destruction, the continuous growth in ballistic missile capabilities, the volatile intentions and increased capabilities of failing states, rogue nations, and non-state actors have made the protection of the United States and our interests from missile attack significantly more complex.

However, the visionary policies of American political leadership have driven industry and defense organizations to expand our deterrent capabilities to well beyond the sole option of mutual assured destruction. These policies have guided the funding, development, and employment of missile defense capabilities which enable missile defense assets to destroy an in-flight missile inside or outside of the atmosphere, a capability that was only recently viewed by many as impossible. While it is understandable that the development of these new technological capabilities was the initial focus of effort, the missile defense environment now exceeds traditional theater-oriented command and control architectures. Piecemeal command and control solutions were developed as new missile defense technologies were fielded.

The purpose of this paper is to analyze current missile threats to the United States, existing missile defense systems and organizations, and to provide recommendations to improve the command and control of global missile defense.

United States Missile Defense Policy

In 1983 President Ronald Reagan announced the United States' intention to develop a space-based missile defense system called the Strategic Defense Initiative (SDI).[1] SDI was developed to provide a defensive capability to counter the Soviet Union's robust inter-continental ballistic missile and nuclear weapon capabilities. Rather than continuing to escalate a race for larger and more numerous nuclear weapons, SDI would develop space-based interceptors to destroy threat missiles. Once it was announced, international and domestic critics strongly opposed the initiative. Domestically, opponents claimed the cost of developing this new capability, one that many believed was technically impossible, was far too great.[2] International critics opposed the program because they believed the program would simply trigger a new phase of the arms race. SDI would force nations to develop new weapons designed to defeat SDI's capabilities. Additionally, domestic and international critics were strongly opposed to the concept of placing weapons in the sanctity of space.

SDI was formally terminated by the Secretary of Defense in 1993 due to high costs.[3] SDI was replaced by a less aggressive, national missile defense concept, built around ground-based missile defense systems.

On July 22, 1999, the National Missile Defense Act of 1999 was signed into law. The act stated "that it is the policy of the United States to deploy as soon as is technologically possible an effective National Missile Defense system capable of defending the territory of the United States against limited ballistic missile attack (whether accidental, unauthorized, or deliberate)."[4] In 2002, President Bush announced an initial national missile defense capability would be deployed in 2004.[5] However, the first successful operational firing of the Ground-based Midcourse Defense (GMD)

System was conducted 2006.[6] As the initial national missile defenses were being deployed, President Bush reiterated that missile defense was a national priority.

The 2006 National Security Strategy clearly states that "the proliferation of nuclear weapons poses the greatest threat to our national security."[7] The proliferation of nuclear weapon technologies, coupled with the hostile intentions and actions of rogue states and terrorist organizations, jeopardizes the very existence of nations and the security of people around the globe. President Bush also outlined the essential national security task to "prevent our enemies from threatening us, our allies, and our friends with weapons of mass destruction (WMD)."[8] The 2006 National Security Strategy also highlights the deterrent effect of missile defense. Faced with capable missile defense capabilities, adversaries may determine that it is not cost effective to develop, field, or employ missile capabilities.[9]

The United States has implemented a comprehensive strategy to protect our Nation, our allies, and our interests abroad from weapons of mass destruction. The strategy includes working with the international community enforce non-proliferation of nuclear technologies, improving deterrence with global strike and ballistic missile defenses, and improving incident response capabilities.[10]

The Missile Threat

There are four basic categories of ballistic missiles: short range, medium range, intermediate range, and inter-continental ballistic missiles. Short range ballistic missiles include all missiles with maximum ranges less than 600 kilometers. Medium range missiles are those between 600 and 1,300 kilometers. Intermediate-range missiles are

those between 1,300-5,500 kilometers, and intercontinental-ballistic missiles are those with a range of greater than 5,500 kilometers.[11]

Generally, short-range through intermediate-range missiles threaten U.S. deployed forces and United States' interests abroad. However, as the asymmetric attacks of September 11, 2001 tragically illustrated, we must be prepared to face an adaptive enemy in the future. Asymmetrical employment of missiles using a ship located off the shores of the United States must not be discounted. The range of inter-continental ballistic missiles makes them the primary missile threat to the continental United States.

The global missile threat spans geographic command lines. There are three distinct phases to a long-range missile launch: the boost phase, the mid-course phase, and the terminal phase.[12] An inter-continental missile launched at the United States from the Korean peninsula would have a launch phase in the area of operations of the Commander, United States Forces Korea, a mid-course phase in the area of responsibility of Commander, United States Forces Pacific, and a terminal phase in the area of responsibility of the Commander, Northern Command. Each type of ballistic missile and each phase of flight have different characteristics. Multi-layered missile defense systems and integrated global command and control are required to defeat these challenging threats.

Weapons of mass destruction, evolving missile capabilities, and the stated intentions of several nations clearly illustrate the gravity of the missile threat to the United States. Our primary national security objective is to protect the American people and our national interests. When an adversary possesses both a capability and the

intent to attack America, our leadership must take proactive measures to counter that threat. The United States Institute of Peace released an interim Congressional report on the strategic posture of the United States which highlighted that "it appears we are a 'tipping point' in proliferation" based on the actions of North Korea and Iran.[13]

Iran

Iran's nuclear and ballistic missile capabilities, coupled with a publicly adversarial foreign policy, pose a significant threat to the United States and our allies. A November 2008 International Atomic Energy Agency report indicated that Iran remains non-compliant with four separate United Nation Security Council resolutions regarding the development of nuclear technologies.[14] Concurrent with the development of nuclear weapon capabilities, Iranian continues development of ballistic missiles which could strike Europe or the United States.

Iran possesses six different models of short range ballistic missiles, two different models of medium range ballistic missiles, two models of intermediate ballistic missiles, and one model of intercontinental ballistic missile. Four models of the short range ballistic missiles, one model of medium range ballistic missile, and one model of intermediate range ballistic missile are known to be operational.[15] The remainder of the missiles is either in development or the operational status is unknown.[16] In November 2008, Iran tested an intermediate-range ballistic missile which is capable of reaching Europe.[17] The United States intelligence community estimates that Iran will have the capability to strike the United States with a ballistic missile by the year 2015.[18] By 2015, Iran could therefore conduct a near simultaneous missile attack on American forces in the Middle East, Allies in Europe, and at targets in the American homeland. The simple

question is who would command and control the global missile defense fight? Would it be CENTCOM, EUCOM, NORTHCOM, STRATCOM, or the National Command Center? This challenge is not only related to the potential of missile attacks from Iran, but also to missile threats from the Far East.

North Korea

North Korea has one of the most robust missile programs in the world, with three operational short range ballistic missile variants, two operational medium-range ballistic missile variants, and intermediate and intercontinental ballistic missile models in development.[19] The known missile capability, coupled with what the 2006 National Security Strategy calls a "serious nuclear proliferation challenge" and a "long and bleak record of duplicity and bad-faith negotiations," illustrates why North Korea poses a significant threat to the United States and our interests abroad.[20] With its existing operational ballistic missiles, North Korea can threaten the entire Korean Peninsula and Japan. Intermediate-range and intercontinental missiles currently being developed by North Korea, will threaten forward deployed forces throughout the Pacific and can potentially strike the Continental United States.

North Korea and Iran are clear examples of the existing ballistic missile threats, but the proliferation of ballistic missiles and nuclear programs around the global exacerbates the complexity of the global missile defense challenge. A nuclear capable Pakistan already possesses operational variants of short range and medium range ballistic missiles and has also developed intermediate range ballistic missiles. India, with nuclear weapon capabilities, possesses operational short, medium, and intermediate-range missiles and is developing an intercontinental ballistic missile.

Russia's inventory of ballistic missiles span all categories and can simultaneously strike targets around the globe.[21] While we can continue efforts to slow proliferation of missile and weapon technologies, it is nearly impossible to stop the advancement of these new technologies around the globe.

Our difficulties in analyzing an accurate status of Iraqi nuclear capabilities prior to Operation Iraqi Freedom as well as surprise ballistic missile launches by North Korea and new developments by Iran, illustrate the many challenges associated with predicting exactly when nations will possess operational missiles and weapons.[22] It is even more difficult to assess what may trigger the employment of these lethal weapons. The global missile threat creates a complex missile defense operating environment for the United States. In response, the United States has developed a broad array of missile defense systems.

United States Missile Systems

Driven by forward-thinking strategic policies, the United States has made significant improvements in its missile defense capabilities over the past twenty-five years. The U.S. strategy is to deploy a layered and integrated global missile defense. Joint Publication 3-27 articulates "the intent is to engage a target with multiple weapons systems through the depth and breadth of the ballistic trajectory of the missile." [23] The layered missile defense includes the capability of destroying ballistic missiles in the boost phase, midcourse phase, and the terminal phase of flight. The United States has already fielded terminal and initial mid-course missile defense capabilities. Boost phase missile defense capabilities are currently being tested.[24]

The United States currently possesses ground and sea-based terminal missile defense systems. In 1991, during Operation Desert Shield/Desert Storm, U.S. Army Patriot missile crews deployed in Israel and Kuwait intercepted short-range Iraqi SCUD ballistic missiles.[25] Following a series of Patriot system, radar, and missile upgrades, most significantly Patriot Configuration 3 (PAC-3) "hit to-kill" technology, Patriot missile crews successfully destroyed Iraqi ballistic missiles during the beginning of Operation Iraqi Freedom in 2003.[26] The United States Army continues testing of an additional terminal phase missile defense system called the Terminal High Altitude Air Defense (THAAD).[27] This system can engage ballistic missiles both inside and outside of the atmosphere. The United States Navy's Aegis Cruisers and Destroyers armed with Standard Block-2 intercept missiles also provide a sea-based terminal missile defense capability. Although the Navy's terminal intercept capability has not been demonstrated in a hostile scenario, the exo-atmospheric intercept of malfunctioning United States satellite in the 2008 clearly demonstrated the systems capabilities.[28] Numerous tests have also demonstrated the viability of the emergent mid-course intercept capability.

The United States' Ground-Based Midcourse Defense (GMD) program was designed to counter the intermediate and long-range ballistic missiles threat.[29] The United States fielded an initial capability against intermediate and long range ballistic missiles in 2006.[30] The initial capability included 24 ground-based interceptors located in Alaska and California, sea-based Standard Block-3 missiles, and acquisition and fire control radars, located in Alaska and in the Pacific. These initial capabilities were intended to protect the United States and our interests against ballistic missile attacks from North Korea and Iran. Although the intercept missile is a critical component of the

midcourse defense system, multi-purpose radars and sensors employed across the globe add another important dimension to the global missile defense fight.

The key global missile defense radars include land, sea, and space-based sensors. The Defense Support Program and Space Tracking and Surveillance System provide critical warning of global missile launches. X-Band and AN/TPY 2 Radar provide essential missile tracking and discrimination capabilities.[31] As discussed with terminal intercept missile defense systems, these radars are positioned in the areas of responsibility of multiple combatant commanders. This creates unity of command issues for global missile defense which become even more evident when emerging boost phase missile defense capabilities are considered.

The Airborne Laser is the focus of U.S. boost phase missile defense capabilities. A tactically and technologically challenging concept, boost phase intercept is the most important because it involves destroying the threat missile closest to the point of origin. This increases the probability that remnants of the intercept will fall in the territory of the launching entity, reduces the number of additional missiles that must be fired by the other elements of the global missile defense system, decreases the opportunity for the missile to employ counter-measures, increases the opportunity for multiple engagements, and increases the probability of destroying the enemy ballistic missile.[32]

Boost phase intercept is tactically the most challenging intercept method because of the time available between missile launch and intercept requires forward positioning of the missile defense system. This is one of the reasons the Airborne Laser was selected as the boost phase intercept solution. The Airborne Laser, loitering in an operational area with a priority for missile defense, provides a feasible solution to the

time constraint. The first lethal test for the Airborne Laser is scheduled for 2009.[33] Fielding of this capability will add additional friction to global command and control, as GCCs vie for allocation of this limited asset. One of the technological developments which will help in command and control of global missile defense is the Command, Control, Battle Management, and Communications system (C2BMC).

The Missile Defense Agency describes C2BMC as the "centerpiece of an integrated, layered missile defense."[34] The system provides missile defense planning and execution capabilities to tactical through strategic level commanders. It provides real-time missile defense situational awareness, provides specific sensor and shooter recommendations to optimize probability of kill, provides fire direction capabilities for missile engagements, and provides essential communications between missile defense organizations and systems. Based on the global missile threat and the major advances in missile defense technology, improved/integrated command and control capabilities are essential for the successful planning and execution of global missile defense. However, technological solutions alone cannot plan and execute global missile defense operations. Computers enable global missile defense, and Soldiers remain the centerpiece to global missile defense.

Missile Defense Organizations

Missile defense organizations have grown incrementally as the missile threat and missile defense capabilities have increased over the past two decades. Prior to Iraq's launch of tactical ballistic missiles during Operation Desert Storm, missile defense organizations were organized along service lines. Army Air Defense Artillery battalions provided point and area air defense for critical Army divisions and corps assets. Air

Defense Artillery brigades commanded subordinate battalions. USMC Low Altitude Air Defense (LAAD) battalions provided organic air defense for Marine Corps organizations. Navy air defenses protected naval ships from air attack. However, Iraq's employment of ballistic missiles forced the United States to expand and integrate organizational command and control capabilities to better meet the new theater missile threat.

The most significant organizational change after Desert Storm was the activation of an Army Air and Missile Defense Command (AAMDC). Iraq's use of tactical ballistic missiles demonstrated that unit-centric air defense forces were insufficient to meet this emerging threat. A theater-level air and missile defense headquarters was required to command Army air and missile defense operations and to fill a critical void in joint missile defense. The Army Air and Missile Defense Command was given the mission to command theater Army air and missile defense operations and to provide ground-based air defense expertise to both land and air component commanders. The AAMDC's role is to integrate Army capabilities, the ground-based missile defense capabilities, into the joint air and missile defense fight.[35]

Today, the Army's ten active component Patriot air and missile defense are stationed in the United States, the Republic of Korea, Japan, and Germany.[36] Two of the CONUS battalions are currently deployed on operational missions to the U.S. Central Command area of responsibility. The active air and missile defense battalions are assigned to five tactical air and missile defense brigades.

These brigades are attached to two regionally focused AAMDCs, one supporting CENTCOM and the other PACOM. An additional AAMDC is being provisionally activated in Europe. The reserve component also performs critical air and missile

defense functions. A reserve component battalion and brigade perform the continuous Ground Based Missile Defense (GMD) mission in Alaska and California. The 264th AAMDC (Reserve Component) supports NORTHCOM and homeland defense.[37]

The next echelon of Army missile defense is the United States Space and Missile Defense Command (SMDC). The Commander, SMDC is the Army's senior commander for space and missile defense. However, SMDC has no assigned missile defense forces and there is no command relationship between the AAMDCs and SMDC.

The 2002 Unified Command Plan directed the merger of United Space Command and United States Strategic Command.[38] Strategic Command was given the responsibility for integrating, coordinating and synchronizing global missile defense. The role was further defined in joint doctrine. Joint Publication 3-01 established STRATCOM as the coordinating authority for global missile defense, with the responsibilities to plan, integrate, and coordinate global missile defense operations across area of responsibility boundaries, provide missile warning and space surveillance to NORAD, provide warning of missile attack to other combatant commanders, develop concept of operations from global missile defense, and support other combatant commands in missile defense development.[39]

In 2005, the Commander, Strategic Command issued an implementing directive creating the Joint Force Component Command for Integrated Missile Defense (JFCC-IMD).[40] The Commander, SMDC was designated as the Commander, JFCC-IMD. JFCC-IMD was given global missile defense planning and coordinating responsibilities. Global missile defense force development responsibilities rest with the Missile Defense Agency.

The Missile Defense Agency was established by the Secretary of Defense in 2002 in order to expedite the deployment of a National Missile Defense System in accordance with the 1999 National Missile Defense Act.[41] The agency's mission "is to develop and field an integrated, layered, ballistic missile defense system to defend the United States, its deployed forces, allies, and friends against all ranges of enemy ballistic missiles in all phases of flight."[42]

The U.S. Department of Defense has made incremental changes in missile defense command and control in order to adapt to the expanding missile threat and our own improvements in missile defense capabilities. However, there comes a point when environmental changes alter the nature of a problem so significantly that previous solutions may not be the most effective or efficient solution to the problem. The changes in the global missile defense environment over the past decade warrant a detailed examination into the effectiveness of command and control of global missile defense operations. The following section provides and assesses two alternative structures for the command and control of global missile defense.

Alternative 1, Status Quo

This alternative, Status Quo, is based on the current missile defense construct contained in the 2008 Unified Command Plan. Geographic commands are responsible for "detecting, deterring, and preventing attacks against the United States, its territories, possessions, and bases, and employing appropriate force should deterrence fail."[43] Geographic commands are the supported commands and STRATCOM is a supporting command for global missile defense. JFC-IMD provides "strategic-level integration and advocacy," operational and tactical level planning, coordination, and support for

integrated missile defense."[44] STRATCOM is responsible for integrating and synchronizing the planning and coordination of global missile defense. The key word in STRATCOM's tasks is "integrating." STRATCOM has no command authority for the planning and execution of global missile defense operations.

Alternative 2, Global Missile Defense Command

This alternative command and control structure changes STRATCOM's Unified Command Plan responsibilities from integration to command of global missile defense. STRATCOM gains combatant command authorities in the planning and execution of global missile defense operations. Additionally, STRATCOM is designated as the supported command for global missile defense. All other combatant commands are designated as supporting commands for global missile defense. As supporting commands, GCCs retain the task of "detecting, deterring, and preventing attacks against the United States, its territories, possessions, and bases, and employing appropriate force should deterrence fail."[45] This alternative command and control structure includes a clear delineation between theater and global missile defense.

All air, ground, sea-based, and space-based boost and mid-course interceptors and sensors are designated as global missile defense assets. These assets are assigned to the global missile defense command, STRATCOM, regardless of their physical location. All terminal missile defense interceptors and sensors are assigned to geographic combatant commands. There will undoubtedly be exceptions to this delineation, but the exceptions would be clarified in written orders. This ensures that GCCs are authorized, and responsible for, executing a full array of active and passive missile defense actions to defend against a missile attack within their area of

responsibility. This also ensures that the right to self defense is retained by all geographic commanders.

Evaluation Criteria. The central issue in this study is the effectiveness of alternative organizations in the command and control of global missile defense operations. Joint missile defense doctrine is woefully insufficient in providing relevant constructs or principles to facilitate an objective analysis for the command and control of global missile defense operations.

Joint Publication 3-01, Countering Air and Missile Threats, is the capstone joint publication for air and missile defense. The manual, updated in 2007, fails to provide a coherent construct for the integration of tactical, operational, and strategic missile defense operations. Joint Publication 3-01 simply "subsumed" the doctrinal constructs of Joint Publication 3-01.5, Joint Theater Missile Defense, and then added general information about global missile defense.[46] Joint Publication 3-01 fails to provide relevant missile defense principles which could be used to facilitate an objective analysis of command and control of global missile defense operations.

In the absence of lucid joint missile defense doctrine, three attributes that can be used to describe effective global missile defense operations are integration, responsiveness, and rapid engagement decision making. These three attributes will be used to analyze the two alternative command and control structures for global missile defense.

Integration. Joint Publication 1-02 defines integration as "the arrangement of military forces and their actions to create a force that operates by engaging as a whole."[47] Missile threats are located throughout the world and can strike U.S. interests

around the globe. In order to counter these threats, U.S. missile defense sensors, shooters, and organizations are deployed around the world. Integrating these separate systems into a single global missile defense is essential to defeat the wide array of missile threats.

There are three critical ingredients to successful integration of global missile defense: expert knowledge on global missile threats and U.S. missile defense systems; identification and prioritization of critical assets which should be protected against missile attack; and standardization of global missile defense procedures. Expert knowledge in missile threats and missile defense systems is required to array missile defense assets to maximize the probability of successful detection, tracking, and intercept. The identification and prioritization of critical assets must also be considered when planning global missile defense operations because there are not enough missile defense assets to protect U.S. interests world-wide. Standardized procedures, such as warning, alert, readiness postures, and engagement procedures are required to enable the many contributors of global missile defense to function as a whole.

Responsiveness. Global missile defense operations must be capable of rapidly adapting to meet changing battlefield conditions. As foreign nations develop and test missile and weapon technologies and the U.S. fields new missile defense capabilities, global missile defense is an on-going operation. If an adversary conducts a missile attack against U.S. interests, today, tomorrow, or next year, the global missile defense system must be ready to respond. When a forward deployed X-Band radar becomes non-mission capable, the global missile defense command and control system must be capable of making immediate adjustments to on-going missile defense operations.

Three aspects of responsiveness will be assessed in both of the alternative organizations: the organizations' ability to monitor on-going global missile defense operations; the organizations' ability to assess the changing conditions; and the organizations' ability to rapidly implement required changes to global missile defense operations.

Timely Engagement Decision Making. Global missile defense operations are time sensitive. Due to short flight times of missiles, engagement decisions must be made in a matter of minutes. Engagement decisions are vital, as a nuclear-armed missile could have existential consequences if the missile reaches its intended target. The engagement decision is further complicated because the supply of enemy missiles far exceeds the U.S. supply of missile defense interceptors. Every missile defense engagement decision has strategic consequences.

In the compressed engagement decision making window, an organization's ability to detect a target, decide whether to engage the target and with which system, engage the target, and assess the results are critical to effective global missile defense operations. [48]

Analysis

This analysis is subjective in nature. However, the evaluation criteria discussed above are based on joint doctrine, emerging missile defense concepts, and history. The analysis suggests that in the current environment, a global missile defense command is a more effective structure to command and control global missile defense operations. Unity of command, through a single global missile defense command, provides the most

effective integration, responsiveness, and timely engagement decision making capabilities.

Alternative #1: Status Quo

Integration. The Status Quo command and control structure fails to enable effective integration of global missile defense operations. The 2008 Unified Command Plan tasks STRATCOM with developing a global missile defense concept of operations.[49] Additionally, Joint Publication 3-01 states that GCCs coordinate missile defense plans with STRATCOM.[50] However, STRATCOM has no authority to direct global missile defense actions. STRATCOM is a supporting command for global missile defense, and geographic combatant commands are designated as supported commands for missile defense.[51] This dysfunctional framework adversely impacts STRATCOM's ability to integrate global missile defense.

STRATCOM possesses the requisite expert knowledge in threat missile systems and U.S. missile defense systems to develop an integrated global missile defense. Joint Functional Component Command- Intelligence, Surveillance, and Reconnaissance (JFCC-ISR) is a subordinate command in STRATCOM. The organization plans, executes, and integrates ISR in support of STRATCOM global and strategic missions.[52] Additionally, the organization's charter includes synchronizing intelligence from national and international intelligence agencies. This organization, focused globally, provides the requisite subject matter expertise to enable development of the global missile defense joint intelligence preparation of the operational environment. JFCC-ISR also provides global capabilities in intelligence collection of threat missile defense infrastructure, weapon development, and weapon employment around the globe.

JFCC-IMD, STRATCOM, is the advocate for missile defense and warning capabilities.[53] The organization possesses expert knowledge on all U.S. global missile defense systems. Supported by the Missile Defense Agency and JFCC-ISR, JFCC-IMD continually analyzes the optimal array of missile defense capabilities to provide an integrated global missile defense coverage. However, STRATCOM does not have the authority to direct global missile defense operations because geographic combatant commands are the supported commands for missile defense.

This relationship also adversely impacts the identification and prioritization of critical assets for potential missile defense protection. GCCs are focused on protecting U.S. interests in their areas of responsibility. Global missile defense operations require a broader perspective because they are not limited to geographic boundaries. Critical U.S. interests around the globe must be identified and prioritized for missile defense protection. Because geographic combatant commands are the supported commands, global missile defense prioritization issues, regardless of how trivial, must theoretically be resolved by the Secretary of Defense.

STRATCOM's lack of missile defense authority also impacts the standardization and implementation of global missile defense procedures which facilitate integration of global missile defense operations. While STRATCOM can recommend missile defense procedures, they have no authority to direct the implementation of these procedures. This adversely impacts the integration of missile defense assets and organizations around the globe, but more importantly it impacts the effectiveness of global missile defense operations.

The Status Quo command and control structure does not enable effective integration of global missile defense operations. While STRATCOM is tasked to develop a global missile defense concept of operations, the organization does not have the authority to direct critical integrating functions. This adversely impacts the effectiveness of global missile defense operations.

Responsiveness. The Status Quo command and control structure fails to enable responsive global missile defense adjustments to changing battlefield conditions. The 2008 Unified Command plan limits STRATCOM's authorities to global missile defense planning and coordinating functions.[54] Although global missile defense operations are currently and continuously on-going, there is essentially no designated command and control headquarters responsible for executing global missile defense operations.

A military cliché states "a plan does not survive first contact with the enemy," so who is making critical decisions during the execution of the global missile defense operations? General James Cartwright, then Commander U.S. Strategic Command, stated "each combatant commander thinks he owns it (command and control of global missile defense)." However, in reality, combatant commanders control only a small part of global missile defense operations. Each of these small parts is essential to the effectiveness of global missile defense operations. A non-mission capable X-Band radar deployed in the area of responsibility of a geographic commander may affect the missile defense of the United States. Although the STRATCOM global missile defense concept of operations can account for many different situations, a plan cannot account for the chance, uncertainty, and friction of combat operations. Changes to the plan are

inevitable, but STRATCOM does not have the authority to direct timely adjustments to the plan.

As the supported commander for missile defense, a GCC possesses the necessary systems, organizations, or capabilities to command and control theater missile defense operations. However, the GCC does not have the capabilities to effectively monitor the global missile defense environment, assess the changing global missile defense conditions, and direct missile defense operations around the globe.

The Status Quo command and control structure does not provide the responsiveness necessary to adapt global missile defense operations to meet changing battlefield conditions. STRATCOM does not have the authorities to execute global missile defense operations and GCCs do not have the capabilities to conduct global missile defense operations. This creates a significant risk in the security of United States interests around the globe.

Timely Engagement Decision Making. The Status Quo command and control structure does not provide an effective construct to enable timely global missile defense engagement decision making. Although terminal missile defense engagement decisions are the responsibility of a GCC, Joint Publication 3-01states that “a missile launch that crosses AOR boundaries complicates C2 of defensive assets and requires coordination amongst multiple CCDRs.”[55] This is an understatement.

Clear unity of command breaks down when a missile is launched across combatant command boundaries. The distinction between supported and supporting commander becomes blurred. If a missile is launched from North Korea, United States Forces Command (USFK) is the supported command, and all other combatant

commands are supporting USFK. As the long-range missile flies over Aegis-capable Cruisers in the Pacific, Pacific Command becomes the supported Command. As the missile crosses into the area of responsibility of Northern Command, NORTHCOM becomes the supported command.

The Status Quo alternative structure lacks a single commander who is responsible for the process of detecting, deciding, engaging, and assessing enemy missiles. The construct relies exclusively on the execution of STRATCOM's planned global missile defense concept of operations, a plan that is executed by numerous missile defense organizations around the globe. There is no single responsible global missile defense decision maker in the missile engagement process.

Space-based assets, controlled by STRATCOM, will likely detect a missile launch. Geographic combatant commands will then be required to decide whether or not to engage the target. Assisted by C2BMC, combatant commands must rapidly decide whether to expend their limited missile defense assets on a missile that may impact outside of their area of responsibility. They will be forced make this time sensitive decision with limited information regarding the status of adjacent missile defense capabilities. They must also consider the effects of missile and warhead remnants impacting in their area of responsibility. If they decide to engage the missile, they must then assess the results of the engagement. If the engagement was unsuccessful, they will have to decide whether to re-engage.

Without complete knowledge of the entire global missile defense system, there are several risks in the engagement decision process: engaging a missile that was not targeting U.S. interests; expending a scarce missile defense asset on a low probability

engagement; simultaneous engagement of a missile by two adjacent commands; or deciding not to engage a missile that strikes its intended target.

The GCC construct for global missile defense engagements is not an effective solution to a complex problem. GCCs do not have the requisite situational awareness to make effective time sensitive global missile defense engagement decisions.

Alternative #2: Global Missile Defense Command

Integration. The Global Missile Defense Command structure provides effective integration of global missile defense operations. The significant improvement in this alternative command and control structure is the empowerment of the global missile defense commander with the necessary authorities to integrate global missile defense operations. As the supported command for global missile defense, STRATCOM will have the authority to direct the actions of multiple separate missile defense elements to form a truly integrated global missile defense system. STRATCOM's other functional component commands (ISR, Global Strike, and Network Warfare) provide additional capabilities to support global missile defense operations.

As discussed in the Status Quo analysis, STRATCOM possesses the necessary threat missile and missile defense expertise to develop an integrated global missile defense. The new authorities will also provide credibility to STRATCOM's global prioritization of critical assets for potential missile defense protection. Fewer issues will have to be elevated to the Secretary of Defense for resolution. STRATCOM will also have the authority to standardize and implement global missile defense procedures which will unify of the efforts of all global missile defense actors.

The Global Missile Defense Command structure provides effective integration of global missile defense operations. STRATCOM's authorities, coupled with their existing capabilities, will enable the integration of world-wide missile defense systems, organizations, and operations into a truly coherent global defense.

Responsiveness. The Global Missile Defense Command structure enables responsive global missile defense adjustments to changing battlefield conditions. This alternative command and control structure empowers STRATCOM with global missile defense execution authorities. It essentially adds a higher headquarters to command and control missile defense operations which cross GCC boundaries, without degrading GCC authorities to conduct theater missile defense operations.

As the supported commander for global missile defense, STRATCOM possesses the necessary authorities to command and control on-going missile defense operations. STRATCOM's global focus, enabling JFCCs, command and control systems, and subject matter expertise provide the capabilities to effectively monitor the global missile defense environment, assess the changing global missile defense conditions, and direct missile defense operations around the globe.

The Global Missile Defense Command structure enables responsive global missile defense adjustments to changing battlefield conditions. STRATCOM capabilities to monitor the global missile defense environment, assess the need to adapt missile defense operations, and most importantly, authority to direct the changes to global missile defense operations provides a responsive global missile defense command and control system.

Timely Engagement Decision Making. The Global Missile Defense Command structure provides an effective construct for timely global missile defense engagement decision making. Joint Publication 3-01 states that "decentralized execution permits timely, decisive action by tactical commanders without compromising the ability of operational-level commanders to control defensive counter-air operations." The "without compromising the ability" of higher commander is an important caveat.

With scarce missile defense assets and only partial situational awareness by subordinate organizations, the global missile defense commander must retain the authority to control global missile defense operations. However, the authority to direct missile engagements must be used by exception only. The nature of global missile defense operations does not afford an excess of the precious resource of time. Centralized planning and decentralized execution is the best construct for prosecuting global missile defense engagements. However, the global missile defense commander has a more complete situational understanding of the global missile threat and the status of the entirety of global missile defense system.

The global missile defense commander could direct the global missile defense Aegis cruisers to hold fire on an incoming missile, so the global missile defense forces in Alaska, with more operational interceptors and a higher probability of kill, could engage the incoming target. Global missile defense engagement decision processes must be meticulously planned and rehearsed regularly. There will not be sufficient time for a deliberate decision making process when a missile is launched.

The Global Missile Defense Command structure provides an effective construct for timely global missile defense engagement decision making. Due to the time

sensitive nature of global missile defense engagements, the engagement process should be centrally planned, but decentralized in execution. However, due to the strategic consequences of a global missile defense engagement, the STRATCOM commander must retain the authority direct missile defense engagements.

Recommendations

Commander, U.S. Strategic Command should be specifically identified as the supported commander for global missile defense. This will correct the 2008 Unified Command Plan's omission of a commander for global missile defense. Although the activation of JFCC-IMD provided significant improvements in command and control capabilities of global missile defense, there remains a critical shortfall in area the unity of command for global missile defense. Joint Publication 3-0 defines unity of command as "all forces operate under a single commander with the requisite authority to direct all forces employed in pursuit of a common purpose." Based on world-wide ballistic missile threats and missile defense assets positioned around the globe, a single commander is required to direct global missile defense. The single authority will enable clear direction in the development, employment, and support of global missile defense systems and organizations. This unity of command will facilitate planning, but more importantly provide clear authority in the execution time sensitive missile defense operations. Terminal phase missile defense assets should remain under the operational control of the GCC in order to ensure unity of command of theater missile defense operations.

The Commander, Joint Forces Command should direct the revision of Joint Publication 3-01, Countering Air and Missile Threats. This critical joint air and missile defense doctrinal publication was revised in 2007. While the 2007 manual successfully

incorporated theater missile defense constructs and introduced several global missile defense considerations, it fails to provide a coherent doctrinal construct which integrates tactical, operational, and strategic missile defense operations. STRATCOM's expert knowledge in global missile threats and global missile defense should be leveraged in the revision of the manual.

The Secretary of Defense should modify the charter of the Missile Defense Agency to force compliance with the priorities of the Commander, Global Missile Defense. The Secretary of Defense gave the Missile Defense Agency "expanded responsibility and authority to define the ballistic missile defense system's technical requirements, change goals and plans, and allocate resources."[56]

Strategic Command and the Missile Defense Agency implemented the Warfighter Involvement Process in 2005 in order to better synchronize global missile defense requirements and priorities. However, a July 2008 Government Accounting Office report indicates that Department of Defense remains at risk of not effectively providing the right capabilities to combatant commanders.[57] A formal clarification of the charter of the Missile Defense Agency, requiring consensus with the Commander, Global Missile Defense would assist in closing this gap.

Conclusion

The forward-looking policies of American leaders and over $100 billion dollars of tax payer monies have enabled the United States to deploy the initial stages of a global missile defense.[58] American industry has developed sensors, missiles, and command and control technologies that make it possible to detect, track, and intercept, above the earth's atmosphere, a missile launched from thousands of miles away. While the

development of these new technological capabilities has been the focus over the past few decades, we must always remember that American service members are the centerpiece of command and control military operations.

Our missile defense organizations have been improved incrementally in order command and control each additional missile defense capability. The world-wide missile threat, coupled with the proliferation of weapons of mass destruction, make it essential that we continue to assess our ability to protect U.S. interests around the globe from a ballistic missile attack. There are two shortfalls in our current command and control of global missile defense operations that must be corrected immediately. The Secretary of Defense should recommend a change to the Unified Command Plan and designate the Commander, U.S. Strategic Command as the Commander, Global Missile Defense. The Secretary of Defense should also modify the charter of the Missile Defense Agency to mandate compliance with the priorities of the Commander, Global Missile Defense in order to better meet the requirements of the combatant commanders.

Once these near-term issues are resolved, the long-range priority should include efforts to improve the missile defense capabilities of foreign nations. The United States must be forward looking in the development of missile defense technologies to ensure the potential integration of Ally missile defense capabilities. This will enable a truly integrated global missile defense capability.

Endnotes

[1] Mira Duric, *The Strategic Defense Initiative: U.S. Policy and the Soviet Union* (Burlington, VT: Ashgate Publishing Limited, 2003), 4.

[2] Sanford Lankford, *Strategic Defense in the Nuclear Age* (Westport, CT: Praeger Security International, 2007),110-118.

[3] Council for a Livable World Education Fund, *Briefing Book on Ballistic Missile Defense* (Washington, DC: Council for a Livable World Education Fund, September 2001), 16.

[4] *1999 National Missile Defense Act (Public Law 106-8)* As viewed at http://thomas.loc.gov/cgi-bin/query/z?c106:S.269 (Accessed December 1, 2008).

[5] George W. Bush, *National Security Presidential Directive 23: National Policy on Ballistic Missile Defense* (Washington, D.C.: The White House, December 16, 2002).

[6] Lt. Gen Henry Obering, *Department of Defense News Briefing (*Washington, D.C.: The Pentagon, September 1, 2006). Lt. Gen. Obering discussed completion of an operational Ground-based Midcourse Defense test. He stated the firing used "operational interceptor out of an operational site at Vandenberg Air Force base," and "it was conducted by operational crews that were manning operational fire control systems in Colorado Springs."

[7] George W. Bush, *The National Security Strategy* (Washington, D.C.: The White House, March 16, 2006), 19.

[8] Ibid., 1.

[9] Ibid., 18.

[10] Ibid.

[11] U.S. Government Accounting Office, *GAO Report 08-740: Ballistic Missile Defense* (Washington, D.C., U.S. Government Accounting Office, July 31, 2008), 7.

[12] Lt. Gen Henry Obering, *Department of Defense News Briefing (*Washington, D.C.: The Pentagon, July 15, 2008). Lt. Gen. Obering discussed a fourth phase of missile flight: the power phase. However, the power phase is the transfer between boost and flight power. Although critical to missile flight, the power phase has little relevance to missile defense.

[13] The United States Institute of Peace, *Interim Report: The Congressional Commission on the Strategic Posture of the United States* (Washington, D.C.: The United States Institute of Peace, December 15, 2008), 4.

[14] International Atomic Energy Agency, *Implementation of the NPT Safeguards Agreement and Relevant Provisions of Security Council Resolutions 1737 (2006), 1747 (2007), 1803 (2008) and 1835 (2008) in the Islamic Republic of Iran* (Vienna, Austria: International Atomic Energy Agency, November 19, 2008), 1.

[15] The Claremont Institute Missilethreat.com, "The Threat*,"* http://www.missilethreat.com/thethreat/pageID.133/default.asp (Accessed on January 3, 2009).

[16] Ibid.

[17] Ed Feulner, "High-Stakes Missile Defense,*" Washington Times*, December 4, 2008, 19.

[18] Office of the Press Secretary, *US Policy Article: Recap of President Bush's Discussion of Progress in Defending America from Attack*, (Washington D.C.: The White House, December1, 2008), hhtp://uspolicy.be/Article.asp. (Accessed January 3, 2009).

[19] The Claremont Institute Missilethreat.com, "The Threat."

[20] Bush, *The National Security Strategy*, 21.

[21] The Claremont Institute Missilethreat.com, "The Threat."

[22] Wisconsin Project on Nuclear Arms Control, *The Risk Report, Volume 4, Number 6, North Korea Missile Update* – 1998, (Washington, D.C.: Wisconsin Project on Nuclear Arms Control, 1998), http://www.wisconsinproject.org/countries/nkorea/bm98.html (Accessed on March 25, 2009). Wisconsin Project on Nuclear Arms Control highlighted that U.S. intelligence was surprised by North Launch of a three stage Taepodong missile on August 31, 1998. The missile flew over Japan before crashing into the Pacific Ocean. Robert Wall, Aerospace Daily & Defense Report, Nov. 30, 2007 also contained a statement by Lieutenant General Trey Obering, Director of MDA, highlighting the surprise regarding Iranians development of the Ashura Missile, with a range of 1,200 miles.

[23] U.S. Joint Chiefs of Staff, *Homeland Defense,* Joint Publication 3-27 (Washington, D.C.: U.S. Joint Chiefs of Staff, July 12, 2007), VI-3.

[24] Missile Defense Agency, *Ballistic Midcourse Defense System Booklet, 5th Edition*, (Washington D.C.: Missile Defense Agency, December 2008), 19.

[25] Council For a Livable World, *Briefing Book on Ballistic Missile Defense*, 16.

[26] Missile Defense Agency, *Missile Defense Agency Fact Sheet:Patriot PAC3*, (Washington, D.C.: Missile Defense Agency), http://www.mda.mil/mdalink/pdf/pac3meads.pdf (Accessed on March 24, 2009).

[27] Missile Defense Agency, *Fact Sheet: Terminal High Altitude Air Defense System*, (Washington, D.C.: Missile Defense Agency), http://www.mda.mil/mdalink/pdf/thaad.pdf (Accessed on March 24, 2009). The first U.S. Army THAAD battery was activated in May 2008.

[28] Office of the Assistant Secretary of Defense (Public Affairs): "Press Release: DoD Succeeds In Intercepting Non-Functioning Satellite," http://www.defenselink.mil/releases/release.aspx?releaseid=11704 (Accessed February 20, 2009).

[29] Missile Defense Agency, *Ballistic Midcourse Defense System Booklet*, 25.

[30] Ibid., 1.

[31] Ibid., 21.

[32] Ibid., 15.

[33] Ibid., 25.

[34] Ibid., 19.

[35] U.S. Joint Chiefs of Staff, *Countering Air and Missile Threats*, Joint Publication 3-01 (Washington D.C.: U.S. Joint Chiefs of Staff, February 5, 2007), II-4.

[36] 32nd Army Air and Missile Defense Command, "Air and Missile Defense Synchronization Briefing," Fort Bliss, Texas, September 15, 2008. This briefing, presented at the September 2008 U.S. Army Air and Missile Defense Synchronization Conference was the source of Army Air and Missile Defense units statuses contained throughout this paragraph.

[37] U.S Army Air Defense School, "Army National Guard Briefing," briefed at the Air and Missile Defense Synchronization Briefing, Fort Bliss, Texas, September 15, 2008.

[38] Peter Gillete, *The 2002 Unified Command Plan: Changes and Implications* (Arlington, VA: National Security Watch, The Institute of Land Warfare, Association of the United States Army, February 23, 2003).

[39] U.S. Joint Chiefs of Staff, *Homeland Defense*, VI-4.

[40] LTG Kevin T. Campbell, *Testimony Before the House Armed Services Committee, Strategic Forces Subcommittee* (Washington D.C.: United States House of Representatives, April 11, 2007), http://armed-services.senate.gov/statemnt/2007/April/Campbell%2004-11-07.pdf (Accessed on March 24, 2009).

[41] Missile Defense Agency, *Briefing Book on Ballistic Missile Defense*, 1.

[42] *Missile Defense Agency Homepage*, http://www.mda.mil/mdaLink/html/faq.html (Accessed on March 24, 2009).

[43] Robert M. Gates, *Unified Command Plan 2008* (Washington, D.C.: U.S. Department of Defense, October 3, 2008), 6. Document was signed on 23 December 2008. The verbage is very similar to tasks contained in Joint Publication 3-01, Countering Air and Missile Threats, p. I-11.

[44] U.S. Strategic Command, *Fact Sheet: Integrated Missile Defense*, (Omaha, NE: U.S. Strategic Command), http://www.stratcom.mil/factsheets/imd/ (Accessed March 25, 2009).

[45] Ibid., 9.

[46] U.S. Joint Chiefs of Staff, *Countering Air and Missile Threats*, iii.

[47] U.S. Joint Chiefs of Staff, *Department of Defense Dictionary of Military and Associate Terms*, Joint Publication 1-02 (Washington, D.C.: U.S. Joint Chiefs of Staff, October 17, 2008), VI-3.

[48] U.S. Joint Chiefs of Staff, *Joint Targeting*, Joint Publication 3-60 (Washington, D.C.: Joint Chiefs of Staff, April 13, 2007), B-3. This is a modification of the Decide, Detect, Deliver, Assess targeting methodology contained in JP 3-60.

[49] Gates, *Department of Defense Unified Command Plan 2008*.

[50] U.S. Joint Chiefs of Staff, *Countering Air and Missile Threats*, I-11.

[51] Ibid.

[52] U.S. Strategic Command Homepage, "Fact Sheet," http://www.stratcom.mil/default.asp?page=factsheets&factsheet=isr (Accessed on February 22, 2009).

[53] Gates, *Unified Command Plan 2008*,

[54] Ibid.

[55] U.S. Joint Chiefs of Staff, *Countering Air and Missile Threats*, I-11.

[56] U.S. Government Accounting Office, *Ballistic Missile Defense, 1.*

[57] Ibid.

[58] Ibid.